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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,348	10/30/2001	J. J. Garcia-Luna-Aceves	UC2000-384-2	2239

8156 7590 08/04/2005

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EXAMINER
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JAIN, RAJ K

ART UNIT	PAPER NUMBER
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2664

DATE MAILED: 08/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/035,348	GARCIA-LUNA-ACEVES ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Raj Jain	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 October 2001.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 40-56 is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/29/02</u>   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

Claims 1-56 examined on the merits.

### ***Claim Objections***

Claims 49-55 are objected to because of the following informalities: The subject claims are same as claims 45-48. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Kristol et al (US005541927A).

Regarding claims 1, 15 and 29, Kristol discloses a multicasting communication method for transmitting data packets over a network of interconnected nodes (106 of Fig. 1, see abstract, col 4 lines 1-9, Figs. 3 & 4, data packets are multicast from one source (Ei-1) to plurality of destination receivers (En-2), comprising:

- ordering messages on a multicast tree (see Fig. 1, col 3 lines 11-23, col 4 lines 1-12, messages or data packets are ordered via establishment of a multicast tree from source to destination.);

- and performing aggregation of ordering primitives across said tree to minimize control traffic among nodes (see col 5 lines 12-25, col 9 lines 25-33, Each member of the tree periodically reports statistics to its main head. This includes statistics that assist in building the tree as well as reports on congestion conditions. Reports on congestion conditions from main heads allow the sender to adapt its data rate to network conditions. This information is aggregated at each level of the tree in order to reduce control traffic to the sender).

Regarding claims 14 & 27, Kristol discloses a multicasting communication method for transmitting data packets over a network of interconnected nodes (106 of Fig. 1, see abstract, col 4 lines 1-9, Figs. 3 & 4, data packets are multicast from one source ( $E_{i-1}$ ) to plurality of destination receivers ( $E_{n-2}$ ), comprising:

- ordering messages on a multicast tree in a diffusing computation (see Fig. 1, col 3 lines 11-23, col 4 lines 1-12, messages or data packets are ordered via establishment of a multicast tree from source to destination.);

- wherein said messages are ordered on corresponding delivery paths from sources to receivers (see figs. 1, 3 & 4, col 4 lines 1-5, messages ordered are delivered from one source or node 106 to one or more destination nodes along a path 108);

and wherein each node is responsive only to its parent and child nodes in said tree (see Fig. 4, each node  $L_i$  is responsive to the parent  $E_{i-1}$  and child  $E_{2-n}$  as shown in the Fig. 4, see also col 5 lines 1-25).

Further with respect to claim 27, the ordering information for a message to common node on a tree (see Fig. 4 node Ei-1 representing the common node of one tree) can be elected as an ordering node for a receiver set such as  $L_x$ ,  $x=1,2,\text{etc.}$ ).

Regarding claims 2, 16 and 30, Kristol discloses ordering performed on a mirror copy of an underlying shared multicast tree (see Fig. 4, col 5 lines 32-35 or step 1, S performs a global multicast to all primary endpoints  $E_{ij}$  where all receive same data packets of information and thus a mirror copy distribution for a multicast tree).

Regarding claims 3, 5, 17, 19, 31 and 33, Kristol discloses ordering of messages from rapidly changing sources, for overlapping receiver groups, and for anonymous hosts, is supported (see col 5 lines 5-12, col 11 lines 2-15, a dynamic ordering of messages is performed based on changing tree statuses).

Regarding claims 4, 18 and 32, Kristol discloses distributing ordering across nodes within the network (see Figs. 1 & 4, col 4 lines 1-20, the inventive concept is to distribute the data packets from source node within a tree to all its branches or destinations).

Regarding claims 6, and 34, Kristol discloses - ordering messages on a multicast tree in a diffusing computation (see Fig. 1, col 3 lines 11-23, col 4 lines 1-12, messages or data packets are ordered via establishment of a multicast tree from source to destination.);

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- wherein said messages are ordered on corresponding delivery paths from sources to receivers (see figs.1, 3 & 4, col 4 lines 1-5, messages ordered are delivered from one source or node 106 to one or more destination nodes along a path 108);

and wherein each node is responsive only to its parent and child nodes in said tree (see Fig. 4, each node  $L_i$  is responsive to the parent  $E_{i-1}$  and childs  $E_{2-n}$  as shown in the Fig. 4, see also col 5 lines 1-25).

Regarding claims 7, and 20, Kristol discloses

- multicasting a message from source to a receiver set (see Fig. 4, col 4 lines 1-12, col 5 lines 1-10, messages or data packets are ordered and sent via establishment of a multicast tree from source to destination.);

sending ordering information for a message to common node on a tree (see Fig. 4 node  $E_{i-1}$  representing the common node of one tree) can be elected as an ordering node for a receiver set such as  $L_x$ ,  $x=1,2,\text{etc.}$ ).

Regarding claims 9, 13, 22, 26, 35 and 39, Kristol discloses ordering node sequences messages assigned to said ordering node and multicasts binding sequence numbers for final delivery to a receiver set where pending messages are to be delivered (see Table 1, sequence numbers are designated for each packet).

Regarding claims 10, 23 and 36, Kristol discloses wherein a node maintains first and second message windows for ordering of multicast messages; wherein said first window is for unordered messages which have been received but whose delivery is pending; and wherein said second window is for messages which are correctly ordered and can be delivered to local processes (see col 8 line 55 – col 9 line 10, selective

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retransmission of a block if two levels or windows of VCI's are available is performed on a point to multipoint or point-to- point basis).

Regarding claims 11, 12, 24, 25, 37 and 38, Kristol discloses a method wherein each node  $i$  in an acknowledgment-tree is labeled with a unique label  $l(i)$ , which is the prefix of all children of  $i$  (see Fig. 4, col 5 lines 12-30, a node is uniquely labeled as  $Ei-1$ , with "i" representing the children of the root node).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8, 21, and 28, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kristol et al (US005541927A) in view of Baumgartner et al (US005195086A).

Regarding claims 8, 21 and 28, Kristol discloses a multicasting communication method for transmitting data packets over a network of interconnected nodes (106 of Fig. 1, see abstract, col 4 lines 1-9, Figs. 3 & 4, data packets are multicast from one source ( $Ei-1$ ) to plurality of destination receivers ( $En-2$ ).

Kristol fails to disclose time stamping of packets en route to receiving device.

Baumgartner discloses time stamping of packets en route to receiving device (see col 13 lines 4-20). Time-stamp ordering assures that the strong sequencing

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condition among all the receiver components in a strong multicast virtual circuit is satisfied.

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made incorporate the time stamping of packets within Kristol so that it assures that the strong sequencing condition among all the receiver components in a strong multicast virtual circuit is satisfied.

***Allowable Subject Matter***

The following is an examiner's statement of reasons for allowance:

Independent claims 40, 45, 49, 53 and 56 are allowed. The prior art discloses a multicast and/or unicast communications system for transmitting data packets over a network of interconnected nodes, comprising: multicasting a message from a source node to a receiver group; unicasting a control message from a source node across a primary node to an ordering node for a designated multicast group or transmission, wherein said primary node aggregates messages from their subtrees and hence staggers the ordering process upward within the tree;

The prior art however fails to disclose delivering messages and or packets to end hosts according to agreed-upon sequence numbers setup prior to transmission.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably



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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raj Jain whose telephone number is 571-272-3145.

The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-

2600.



RJ

August 1, 2005